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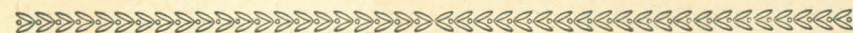
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40TH YEAR

## *The* **Reader's Digest**

APRIL 1961

*An article a day of enduring significance, in condensed permanent booklet form*



"Hubbell's article contains one clear error—the return time of a radar echo from the moon is around 2 ½ seconds, not the 75 seconds quoted by Hubbell—but it remains the best available account of the incident." Donald K. MacKenzie, *Mechanizing Proof: Computing, Risk, and Trust Inside Technology*. Cambridge MA: MIT Press, 2001. n. 4, p. 340.

# "You Are Under Attack!"

## The Strange Incident of October 5

*For a few heartbeats, time stood still.  
It looked as if the missile war had started*

BY JOHN G. HUBBELL

**M**INUTES OF TERROR: this headline in the *Washington Post* and *Times Herald* was typical of many around the world last December. It referred to events that took place eight weeks earlier, when the most powerful radar system ever devised reported as "99.9 percent certain" that a ballistic missile attack had been launched against the North American continent. Ominous numbers flashed in the War Room at North American Air Defense Command (NORAD) headquarters in Colorado Springs. This was no test. A decision had to be made immediately on whether to set in motion the procedure for unleash-

ing our retaliatory might against the Soviet Union.

The decision was made. Our planes and missiles did not fly. And the attack never took place.

What exactly did happen that fateful October day? Here is a report that should instill confidence both in the equipment and in the men who guard our country. It is an assurance that the danger of "accidental war" emanating from this country is slim indeed.

THE STORY begins at Thule, Greenland, where four radar antennas, each 165 feet high and 400 feet long, face off at various angles, searching



thousands of miles across the top of the world and deep into the Soviet Union. This is part of BMEWS (Ballistic Missile Early Warning System), a fantastic radar complex designed to provide us with maximum warning of intercontinental missile attack.

BMEWS operates with two fans of radar energy at different elevations. The lower-level fan will detect an object as quickly as it rises above the horizon, determine its position and flash a warning to NORAD headquarters. Seconds later, as the object passes through the upper radar fan, its position will be measured again. Instantly computers correlate the two readings, calculate the missile's trajectory, figure out where it was launched and where and when it will hit, and fire all this information to the Display Board, a 14-foot-square plastic map of Eurasia in the NORAD War Room.

Above the map is an alarm level indicator. Should the number "1" flash red, as it did on October 5, BMEWS would be signaling: "Something worth worrying about is happening. Assemble the Battle Staff. Watch closely."

A flashing "2" means: "The contact is significant. Be ready to move in seconds."

At alarm level "3" the system means: "Something definitely headed your way. Checking to make certain we're not reading meteor trails, aurora borealis, any type of interstellar noise. Better call the Joint Chiefs of Staff in Washing-

ton, the Chiefs of Staff Committee in Ottawa, and SAC headquarters in Omaha." (At SAC headquarters, too, the Display Board is constantly watched, via closed-circuit television.)

A flashing "4" means: "You are apparently under attack. Better bring defense weaponry up, warn SAC to prepare its ICBM's for launching, get its bombers off the ground and turn loose the airborne alert force."

Alarm level "5" means: "It is 99.9 percent certain that you are under ICBM attack!"

Simultaneously, another indicator on the Display Board, the raid estimate indicator, would be showing the size and strength of the attack. A third indicator, the impact predictor, would show the number of points on the North American continent about to be struck, and a fourth would show "minutes to go" before the lead missile lands on target.

In the same moment, large ellipses would form on the map of Eurasia, showing general areas of missile launchings, and on a huge three-stories-high map of North America right next to it, showing general target areas. As the attack progressed, the BMEWS computers would continually and in microseconds recalculate; the ellipses would rapidly shrink, pinpointing launch sites in Eurasia, specific targets in North America.

The NORAD Battle Staff, some 20 top-ranking U.S. and Canadian

air defense specialists, is frequently snapped to surprise practice alerts. The order from the War Room comes over a red telephone in each man's office or living quarters, or by various other communications systems wherever he happens to be. He, or a fully qualified deputy, is never where he cannot be reached instantly. The code words are: "Coca Color." They mean: "Get here *now*!"

At 3:15 p.m. last October 5 the red telephones rang, and the Battle Staff got a bone-chilling message from the general duty officer in the War Room, Air Force Col. Robert L. Gould: "Coca Color *actual*!" This was for real!

In the War Room, the Battle Staff found the alarm level indicator flashing at "3." It went quickly to "4," then "5," indicating that a massive ICBM attack was under way. The numbers on the raid estimate indicator mounted higher and higher. But strangely, neither the impact predictor nor the minutes-to-go indicator showed anything, and no ellipses were forming over the maps of Eurasia and North America. It was a tense and frightening moment. And there was not a second to spare for conjecture; if an attack had been launched against us, defense weaponry must be flushed into the air, and the retaliatory forces unsheathed, right *now*. But first, there had to be total certainty that an attack was under way.

The commander in chief of NORAD, Air Force Gen. Laurence

S. Kuter,\* was in his C-118, 18,000 feet over South Dakota, en route home from an inspection trip. He had left NORAD's deputy commander in chief, Canada's Air Marshal C. Roy Slemon, in charge.

Slemon's first question was directed at Air Force Brig. Gen. Harris B. Hull, NORAD's chief of intelligence. "Where is Khrushchev?"

"In New York City," Hull replied. "Do you have any intelligence indications that would tend to confirm the radar reports?"

"None, sir."

Quickly, calmly, Slemon assessed the situation. It seemed inconceivable that the Soviet Union would launch an attack with Khrushchev in New York. It was even more unbelievable that General Hull would have no inkling that an attack was in the offing. Hull and the members of his staff have at their finger tips a tremendous assortment of reports produced by half a dozen different agencies. NORAD intelligence on the communist world's military capabilities and activities is as complete and up-to-the-minute as it is physically possible to make it. Before anyone could mount a surprise attack there are certain things the NORAD staff believes he must do. What these are must remain secret. Suffice it to say that before an enemy jumps, he must bend his knees. And Harris Hull could see no bent knees anywhere.

Still, an attack could not be ruled

\*See "Tireless Sentinel for North America," The Reader's Digest, October '60.



out. There is, after all, nothing absolute about intelligence indicators. Moreover, the BMEWS system was designed to reject any but "significant" echoes. And even when it accepted an echo as significant, it would not recognize it as a missile until it had determined that the object was not a satellite going into orbit; that it was headed for North America; and that it would not overfly the continent.

Slemon immediately reported to General Kuter the confusing picture BMEWS offered. "You continue in command," Kuter said. "Keep me advised." Then, for what seemed an eternity, General Kuter felt very lonely, though he remained in unbroken telephone contact with all that transpired.

Via telephone "hot lines" Slemon called the war rooms in Washington, Ottawa and Omaha, but advised the duty officers not to summon their military chiefs. The picture simply did not make sense yet. But Slemon meant to make sense of it quickly.

BMEWS, he reasoned, was still in a shakedown stage: it had started operating only four days earlier. If it could go haywire, now was the logical time. None of NORAD's other radar walls—the Distant Early Warning Line across the topmost rim of the continent, the Mid-Canada and Pinetree lines—reported any activity. These and other warning systems must *all* be taken into account in judging any situation. And now General Hull in-

formed him that the number of missiles being reported by the raid estimate indicator far exceeded our best estimate of Soviet military capabilities.

Air Force Maj. Barney Szczutkowski, NORAD's space surveillance officer at Thule, studied the echoes on his radarscopes. Over an intercom system, he told Slemon the objects were coming up over Norway.

"What is your range?" Slemon asked.

"Twenty-two hundred miles, sir."

Slemon looked at the still-blank impact predictor and minutes-to-go indicator. "What is your closing rate? [How fast are the missiles coming?]"

But Thule could report no closing rate. More objects kept coming up, but none had reached the upper radar fan. Furthermore, Szczutkowski said, it was taking 75 seconds for each burst of radar energy to return with an echo.

At last, Slemon knew with certainty that these were not ICBM's. If they were, it would take only one eighth of a second to obtain radar echoes on them. He put this assurance on the "hot lines" and reported it to General Kuter.

The crisis was over. *It had taken exactly 60 seconds to reach a decision!*

Within five more minutes the Battle Staff determined that BMEWS had *not* malfunctioned; that it was, in fact, more powerful than anyone had dreamed. For there

was indeed an object coming up over Norway headed this way. The rate of rise indicated it would not overfly North America. At the same time BMEWS deduced that it would not impact on the continent; therefore there could be no impact prediction, no report on minutes-to-go. What BMEWS—thought to have a range of 3000 miles—had spotted was the *moon*, nearly a quarter of a million miles distant!

The reason BMEWS had reported a range of 2200 miles was that it was set to read ranges up to 3000 miles and had no way of expressing itself in terms of hundreds of thousands of miles. Consequently, it had simply divided 3000 miles into the precise distance to the moon, and reported the distance left over—2200 miles—as range. (Since that time, the system has been taught to reject moon echoes.)

The reason so many objects were reported was that BMEWS radar takes 20 scans of an object each second, then files it in its memory. Whatever it sees after each 20th scan it assumes to be a new object. Moreover, on each scan BMEWS was reporting *four* objects; the "waste energy" on each side of the main radar beam was also hitting the moon and returning elongated blips, such as ICBM's might make, to the radarscopes.

Did we nearly start a nuclear war



*Overheard:* "I've been on a diet so long that as far as I'm concerned butter is just something you write through with a ballpoint pen."

—Bob Goddard in St. Louis *Globe-Democrat*

by accident? It wasn't even close. There was not a single moment when Air Marshal Slemon felt possessed of enough evidence even to warrant advancing the state of alert of our air defense forces, or to advise SAC to step up its alert. And even if he had, neither NORAD nor SAC can trigger our retaliatory forces. Only the President can. Furthermore, after SAC's Alert Force has been directed toward targets in the Soviet Union, if at a given point this Force has not received an additional code word over a foolproof communications system, every bomber would turn back. But so quickly and accurately did Roy Slemon assay the situation on October 5 that it was never necessary to bring even the military chiefs of the United States and Canada, much less the President, into conference.

Says General Kuter: "No enemy will catch us off guard. But we will never go to war by accident. We have too many foolproof tools for checking out our information instantly. And the most important thing we have working for us is the disciplined judgment of mature professionals."

Canada's Air Marshal C. Roy Slemon proved that. More than anything else, the incident of last October 5 was an example of how a well-organized, international military command should operate.



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